



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829

PAT QUINN, GOVERNOR

LISA BONNETT, DIRECTOR

MEMORANDUM

DATE: March 7, 2014

cc: DWPC/RU
DWPC/CAS

TO: Region File

FROM: Maureen Brehmer, EPE – Des Plaines Office

SUBJECT: Inspection Report on City of West Chicago
NPDES Permit No. IL0023469

On August 6, 2013, a Compliance Evaluation Inspection was conducted at the subject facility. Attached is a copy of the report.

**EPA**

United States Environmental Protection Agency
Water Compliance Inspection Report

Form Approved
OMB No. 2040-0057
Approval Expires 8-31-98

Section A: National Data System Coding (i.e., PCS)

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	Fac Type
1 N 2 3 L 4 0 5 0 6 2 7 3 8 4 9 6 10 9 11 12 1 13 3 14 0 15 8 16 0 17 6 18 C 19 S 20 1					
Remarks					
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 					
Inspection Work Days	Facility Self-Monitoring Evaluation Rating	BI	QA	Reserved	
67 68 69 70 71 72 73 74 75 76 77 78 79 80 					

Section B: Facility Data

Name and Location of Facility Inspected (For industrial users discharging to POTW, also include POTW name and NPDES permit number) City of West Chicago Route 59 and ILRoute 38 West Chicago, IL	Entry Time/Date 8/6/2013	Permit Effective Date 07/01/06
	Exit Time/Date 8/6/2013	Permit Expiration Date 06/30/11
Name(s) of On-Site Representative(s)/Title(s)/ Phone and Fax Number(s) John Bowman, Project Manager/928-273-1222 Tom Getz, Project Manager/630-293-2261 Sue Ruta, Lab/IPP/630-293-2261	Other Facility Data	
Name, Address of Responsible Official/Title/Phone and Fax Number Rob Flatter, P.W. Director City of West Chicago 475 Main Street West Chicago, IL 60185		
Contacted <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Section C: Areas Evaluated During Inspection (Check only those areas evaluated)

<input checked="" type="checkbox"/> Permit	<input checked="" type="checkbox"/> Flow Measurement	<input checked="" type="checkbox"/> Operation & Maintenance	<input type="checkbox"/> CSO/SSO (Sewer Overflow)
<input checked="" type="checkbox"/> Records/Reports	<input checked="" type="checkbox"/> Self-Monitoring Program	<input checked="" type="checkbox"/> Sludge Handling/Disposal	<input type="checkbox"/> Pollution Prevention
<input checked="" type="checkbox"/> Facility Site Review	<input type="checkbox"/> Compliance Schedules	<input type="checkbox"/> Pretreatment	<input type="checkbox"/> Multimedia
<input checked="" type="checkbox"/> Effluent/Receiving Waters	<input checked="" type="checkbox"/> Laboratory	<input checked="" type="checkbox"/> Storm Water	<input type="checkbox"/> Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

See attached inspection report for summary of findings.

Name(s) and Signature(s) of Inspector(s) Maureen Brehmer, EPE	Agency/Office/Phone and Fax Numbers IEPA/Des Plaines/(847)294-4000	Date 3/7/2014
Signature of Management Q A Reviewer	Agency/Office/Phone and Fax Numbers IEPA/Des Plaines/(847)294-4000	Date



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PAT QUINN, GOVERNOR

JOHN J. KIM, DIRECTOR

INSPECTION NOTES

Facility Name:	West Chicago Regional WWTP
NPDES Permit No.	IL0023469
Basin Code:	GBK 043
Inspection Type:	Compliance Evaluation
Date of Inspection:	August 6, 2013
Inspected by:	Maureen Brehmer, EPE
Interviewed:	John Bowman, OMI Project Manager Susan Ruta, Lab/IPP

GENERAL INFORMATION

Responsible Officials:

Ruben Pineda, Acting Mayor	(630) 293-2200
Robert Flatter, Director of Public Works	(630) 293-2255
John Bowman, Project Manager	(630) 293-2261

Plant Personnel and Certification Status:

John Bowman, Regional Business Mgr.	Class 1
James Rakow, Operator	Class 1
Guy Crawford, Operation Super.	Class 1
Brent Lautenbach, Maintenance	Class 1
Zem Todd, Operator	Class 2
Rich Lang, Maintenance/Operator	Class 3
Robert Arroyo, Maintenance/Operator	Class 4
Susan Ruta, Laboratory/IPP	Non-certified
Maria Lenzi, Administrative	Non-certified
Tom Getz, Project Mgr.	Non-certified

Plant Location:

This facility is located at the intersection of Illinois Route 59 and Illinois Route 38 on Sarana Drive. The legal description is the NE 1/4 of Section 15, T.39 N - R.9E. The mailing address is City of West Chicago, 475 Main Street, P.O. Box 488, West Chicago, IL 60185.

Receiving Waters:

This facility discharges to the West Branch of the DuPage River. The waters are classified as general use with a 7Q10 of 11.5 cfs.

NPDES Permit Requirements:

The new permit became effective on July 1, 2006 and expired on June 30, 2011. The permit authorizes discharge 001 which is fully treated effluent and discharge A01 which is excess flow. The excess flow facilities shall not be utilized until the main treatment facility is receiving its maximum practical flow.

Plant Description:

Flow enters this facility through two interceptors - a 42" line and a 36" line. Additionally, there is a 20" force main from the Village of Winfield. Flow enters through bar screens and is then directed to a comminutor. After which flow is lifted by pumps and is gravity fed through the remainder of the plant. Treatment units include aerated grit removal, primary clarification, activated sludge aeration, clarification, tertiary filtration, chlorination and dechlorination. Excess flow facilities consist of settling, clarification and chlorination.

It should be noted that the screw pumps were replaced with submersible prerotation pumps in 2003. The three submersible pumps discharge to a common header pipe and flows through a magnetic flow meter prior to entering the grit tank.

Plant Capacity:

The facility is rated at 7.64 MGD design average flow and 20.3 MGD design maximum flow. Design loading for this facility are 14, 480 lb/day BOD and 14,150 lbs/day TSS.

Area Served:

The West Chicago Regional WWTF services the City of West Chicago and the Village of Winfield. The current population of West Chicago is approximately 25,700. The current population of Winfield is approximately 9475.

Type of System:

The West Chicago sanitary sewers system was originally installed in the 1920's. This system is 100% separate. The collection system is operated by Chicago of West Chicago. The contact for the collection system is Rob Flatter, P.W. Director.

Lift Station:

There are currently 15 lift stations located in the City of West Chicago. All lift stations which the exception of the Hawthorne Lane West Station (stormwater) have an auto dialer or are part of the SCADA system. Stations either have a standby generator or an auxiliary power connection for a portable generator. All lift stations are inspected at least three times per week. A list of these stations are as follows:

<u>Lift St. No.</u>	<u>Location</u>	<u>No. pumps</u>	<u>HP</u>	<u>TDH</u> (feet)	<u>gpm</u>	<u>Vender</u>	<u>Type</u>
1	1450 S. Neltnor	2	15	50	600	Aurora Pump	Centrifugal
2	2251 Meadowlark	2	10	55	180	Hydromatic	Submersible
3	1435 Roosevelt Rd	3	100	75	2800	Ebara	Submersible
4	1689 Joliet St.	3	15	64	800	Hydromatic	Submersible
5	344 Main St.	2	15	60	450	Gorman-Pupp	Centrifugal
6	1415 Prairie Cross.	2	15	63	441	Hydromatic	Submersible
7	410 Coolidge	2	5	50	248	Hydromatic	Submersible
8	Hawthorne Ln.(W)	2	15	15	1600	Hydromatic	Submersible
9	1960 Powis Rd.	2	10	40	560	Hydromatic	Submersible
10	OS040 Winwood	2	75	87.5	2200	Hydromatic	Submersible
		2	60	87.5	1250	Hydromatic	Submersible
11	811 E. Hawthorne	2	15	70	350	Hydromatic	Submersible
12	840 E. Main St.	2	3	35	45	Hydromatic	Submersible

14	2201 W. Tower Rd	2	30	58	1050	Ebara
15	Prestonfield	2	15	45	613	Hydromatic

The lift station at the plant is considered to be no. 13.

System Problems:

OMI runs the pretreatment program and plant operations. The City of West Chicago handles the sanitary sewer system. If problems are identified at the wastewater treatment facility, the city is notified by OMI and they work together to identify the source of the problem. The City of West Chicago currently will smoke test and have done flow monitoring, through RJN Consultants. Areas have been broken down so the city will start in the worst area first. Lift stations 1 and 4 areas will be televised and worked on first. I/I studies are available for review.

Industrial Users:

There is an approved pretreatment program that will not be evaluated at this inspection. The pretreatment program is currently being run by OMI per contract.

Wastewater Treatment Facility

Influent Pumps

Type: Wemco-Hidrostral Screw Centrifugal Pump Prerotation
3 Pumps
80.5/40.2 HP, 3 Phase, 60 Hz., 460 Volts, 1188/886 RPM, 5150/1650 GPM
Prerotation Range: 1650 –10,300 RPM

Grit Tanks

Number of units	2
length, feet	40
width, feet	8
depth, feet	8
Volume	
each, cubic feet	2560
each, gallons	19,149
Detention time at maximum flow, minutes	2.7

Available air, SCFM	400
Grit removal capacity, cf/hr	15

Primary Tanks

Number of units	4
width, feet	30
depth, feet	8
Volume	
each, cubic feet	27,840
each, gallons	208,243
Detention time at maximum flow, hours	1
Surface Area, each sq. feet	3480
Overflow rate at average flow, GPD/SF	549
at maximum flow	1458
Weir length, total feet	792
Horizontal velocity at maximum flow, FPH	118
Upflow velocity at weirs at Q max, FPH	74

Aeration Tanks

Number of units	4
length, feet	174
width, feet	50
depth, feet	18
freeboard, feet	1.5
Volume	
each, cubic feet	156,600
each, MG	1171
Detention time at maximum flow, hours	14.7
BOD loading, #/1000 cubic feet/day	16
Diffuser transfer efficiency	13.7
Available air, SCFM	4900

Aeration Blower Design

Number of units	4
Capacity, each, SCFM	1800
Motor and engine, HP	125
Blower speed, RPM	1200 to 1800

Final Settling Tanks

Number of units	4
diameter, feet	85
depth, feet	12
Volume	
each, cubic feet	68,094
each, gallons	272,376
Detention time at maximum flow, hours	2.35
Surface area, each, square feet	5675
Overflow rate at average flow, GPD/SF	337
Overflow rate at maximum flow, GPD/SF	916
Weir length, total, feet	926
Weir overflow rate at maximum flow, GPD/LF	22,462

Return Activated Sludge Pump Design

Variable Speed	
no. of units	2
suction size, inches	10
discharge size, inches	8
capacity, GPM	1100 to 3600
pump speed, RPM	575 to 870
motor size, HP	25
Constant Speed	
no. of units	1
suction size, inches	10
discharge size, inches	8
capacity, GPM	1700
pump speed, RPM	690
motor size, HP	15

Any of these pumps may be run off of the variable frequency drive or constant speed.

Tertiary Filter Design

number of cells	10
length, feet	30
width, feet	11.75
Sand depth	11
Particle size, MM	0.45

Uniformity coefficient	1.5
Surface area	
each, sq. feet	352.5
Filter rate with one cell o/s	
At average flow, GPM/SF	1.67
At maximum flow	4.44
Backwash rate, GPM	4230
Clearwell volume, gal.	96,900

Chlorination Facilities Design

Number of tanks	3
length, feet	51
width, feet	10
depth, feet	14
Volume	
each, cubic feet	14,280
each, gallons	106,814
Detention time at maximum flow, min.	15
chlorine cylinders	1 stored at a time*
feed rate, max.lbs/day	250

*The permittee is following Risk Management Regulations by being under the threshold limit of 2500 lbs of chlorine gas at anytime.

Sludge Thickener Design

Flotation	
no. of units	1
surface area, total sq. ft.	250
feed rate, GPM	125
solids loading at 0.9% TS, #D/SF	54
hydraulic loading, GPM/SF	0.5
sludge volume, GPD	14,300
Gravity	
no. of units	2
surface area, total sq. ft.	1152
feed rate, GPM	50

solids loading at 0.9% TS, #D/SF	4.7
hydraulic loading, GPM/SF	0.04
sludge volume, GPD	22,900

Anaerobic Digester Design

number of units	3
(2 primary heated and mixed and 1 secondary unheated or mixed for settling)	
diameter, feet	55
sidewater depth, feet	26
cone slope	1:55
volume	
each, cubic feet	67,700
total (2 primary), cubic feet	135,400
each, gallons	506,400
each (1 secondary), cubic feet	67,700
each (1 secondary), gallons	506,400
volatile solids loading, primary, #D/1000 cf	81
solids retention time, primary, days	23
storage capacity at 5% TS, days	50
primary, heater-mixer guns	
number per primary digester	3
heating capacity, total BTU	2,100,000
mixing capacity, total GPM	11,400

Note: The secondary digester has been out of service for several years.

Belt Filter Press Design

number of units	2
size of units, meters	2
feed rate, GPM	80
solids loading at 5% TS, #/meter/hour	1000
polymer feed rate, #/hr	20
GPM	10

Excess Flow Facilities

Clarifier	
number	1

capacity, sq.ft.	4420
lift station for drain back to dry weather facilities, pumps	
number	2
type	submersible/grinder pumps
gpm	250
TDH, ft.	21

Sludge Handling and Disposal

Waste activated sludge normally travels to the dissolved air flotation unit and eventually to the anaerobic digesters. After digestion, polymer is added and the sludge is then dewatered on the belt filter press. This produces a cake that is approximately 14 to 17% solids. West Chicago landfills all their sludge and screenings from preliminary treatment at Orchard Hills Landfill in Davis Junction, IL hauled by Advanced Environmental Services.

NPDES PERMIT COMPLIANCE

Permit:

The NPDES Permit expired on June 30, 2011 and all known discharge points were permitted.

Records and Reports:

Semi-annual sludge management reports have been submitted. Calibration records of laboratory equipment are maintained. Temperature logs are available on the individual pieces of equipment such as incubator, drying oven and refrigerator. An operating log is maintained for each unit.

Flow Measurement:

Flow is measured at the influent, effluent and excess flow as required by the permit. The effluent and influent flow meter is measured with an ultrasonic flow meter. A 24" flow restrictor was installed in the 48" influent and effluent lines that allows for better resolution and thus more accurate flow measurement. The excess flow meter, influent and effluent were last calibrated on March 7, 2013. A magmeter was installed in October 2003 following the new prerotation pumps to measure flow from the City of West Chicago. A new meter was installed in May 2007 to measure flows from Winfield for billing purposes.

Laboratory:

NPDES Permit parameters pH, chlorine residual and DO are analyzed in house. BOD/CBOD is currently analyzed by Suburban Laboratories in Hillside. The remainder of the parameters are

sent to Prairie Analytical, Lake in the Hills, IL. Chain of custody sheets are complete and maintained for these samples. Priority pollutants, metals and sludge samples are analyzed at Prairie Analytical. Records of calibration of equipment are maintained and all thermometers used in the laboratory are NIST.

Effluent and Receiving Waters:

On the date of this inspection, the plant effluent appeared to be cloudy and turbid in the final chlorination tank. There were sludge clumps floating to the surface of the tank and an operator was attempting to collect them before they went over the weir. The discharge point of the West Branch of the DuPage River had floating brownish scum clumps. Photographs are attached to show effluent condition.

John Bowman, Regional Business Mgr. had notified the IEPA of a fecal coliform violation on July 29, 2013 and indicated that they were investigating the cause. On July 31, 2013 another email from Mr. Bowman again indicated that they were investigating the cause. It further stated that it may be caused by an industrial discharger that had shut down a process line and a change in loading may have caused a detrimental effect to the solids inventory. On Friday, August 2, 2013, I received an email that discussed a process upset and additional violations of TSS and Ammonia-nitrogen. I attempted to contact Mr. Bowman on August 2, 2013 and instead spoke with Tom Getz, Project Manager who informed me that the solids inventory started to get low on July 22, 2013 and on Friday July 26, 2013, they stopped wasting because the effluent "didn't look good." On August 2, 2013, I requested that they start sampling daily until the situation was under control.

During this inspection, I spoke with Mr. Bowman, Mr. Getz and Brent Lautenbach, Class 1 Operator who informed me that the effluent started to darken up on July 22, 2013. I reminded them that the IEPA should have been notified on this date. They stated that the same event had occurred on September 11 and 12, 2012, which had resulted in two fecal coliform violation. The notice of noncompliance sent for these violations do not indicate the true cause of the noncompliance.

Self-Monitoring Program:

The NPDES permit requires sampling 3 days/week. Copper is run monthly as required by the permit. TSS, NH₃-N; Copper and Fecal Coliform are sent to Prairie Analytical for analyses. Chlorine Residual, pH and DO are analyzed in house. BOD/CBOD is sent to Suburban Laboratory.

Operation and Maintenance:

A daily log is maintained at each unit with operating information. A spare parts and equipment inventory is maintained on the grounds. The operator generates a monthly summary and conducts a monthly safety inspection. A semi-annual vibration analysis is done on all major pieces of equipment and highlighted areas are checked and corrected if necessary. There is dual feed entering the plant in the event of a power failure. An alarm system is tied into the SCADA system and notifies necessary personnel of a power and/or system problem. The SCADA system will also contact the operators if there is a 1/2 inch rainfall within a six hour period. The plant is checked daily, seven days a week. Due to the quality of the effluent, it is used throughout the plant for various functions such as seal water, wash down water, chlorine carry water and press wash down to name a few.

There is a primary clarifier and Digester 1 is out of service for repair. Two sanitary sewer permits were issued for this reporting period:

2012-AB-0659 issued 10/5/12 – Installation of digester mixing pump, spiral heat exchanger system, a sludge recirculation pump and various associated mechanical and electrical equipment at anaerobic digester no. 2.

2013-AB-1235 issued May 9, 2013 – Installation of a replacement 520 gpm gravity belt thickener; two replacement 62 gpm belt filter presses, replacement of dry polymer feed units, three new liquid polymer feed units and replacement of WAS and TWAS pumps.

Stormwater:

The facility obtained a No Exposure Certification for stormwater. On the date of the inspection plant grounds did not show any areas of concern.

Summary:

The facility is in noncompliance for the following:

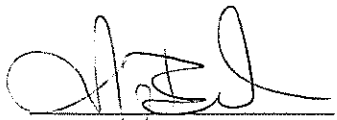
1. July 22, 2013 – failure to notify the IEPA within 24 hours of a violations that may endanger health or the environment. This notification is required by Attachment H, Standard Condition 12 (e) of the NPDES Permit.
2. August 6, 2013 – Offensive conditions due to discharge of turbid effluent to the West Branch of the DuPage River – Title 35, Subtitle C, Chapter 1, Section 302.203.

3. Effluent violations due to the plant upset:

TSS maximum concentration limit was exceeded on July 28, 2013; July 30, 2013; August 1 to 6, 2013.

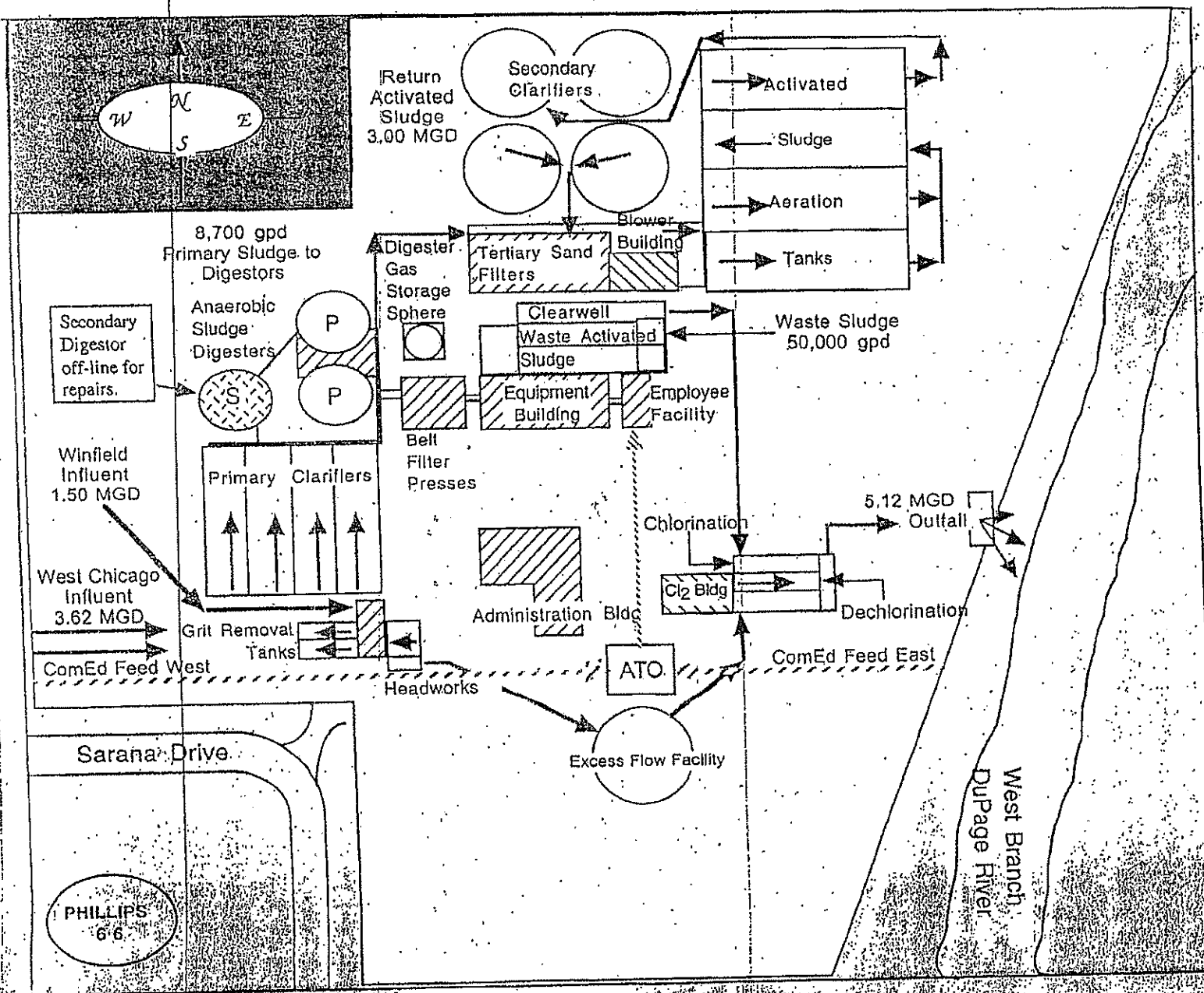
Ammonia-nitrogen maximum concentration limit was exceeded on July 30, 2013; August 1 to 5, 2013.

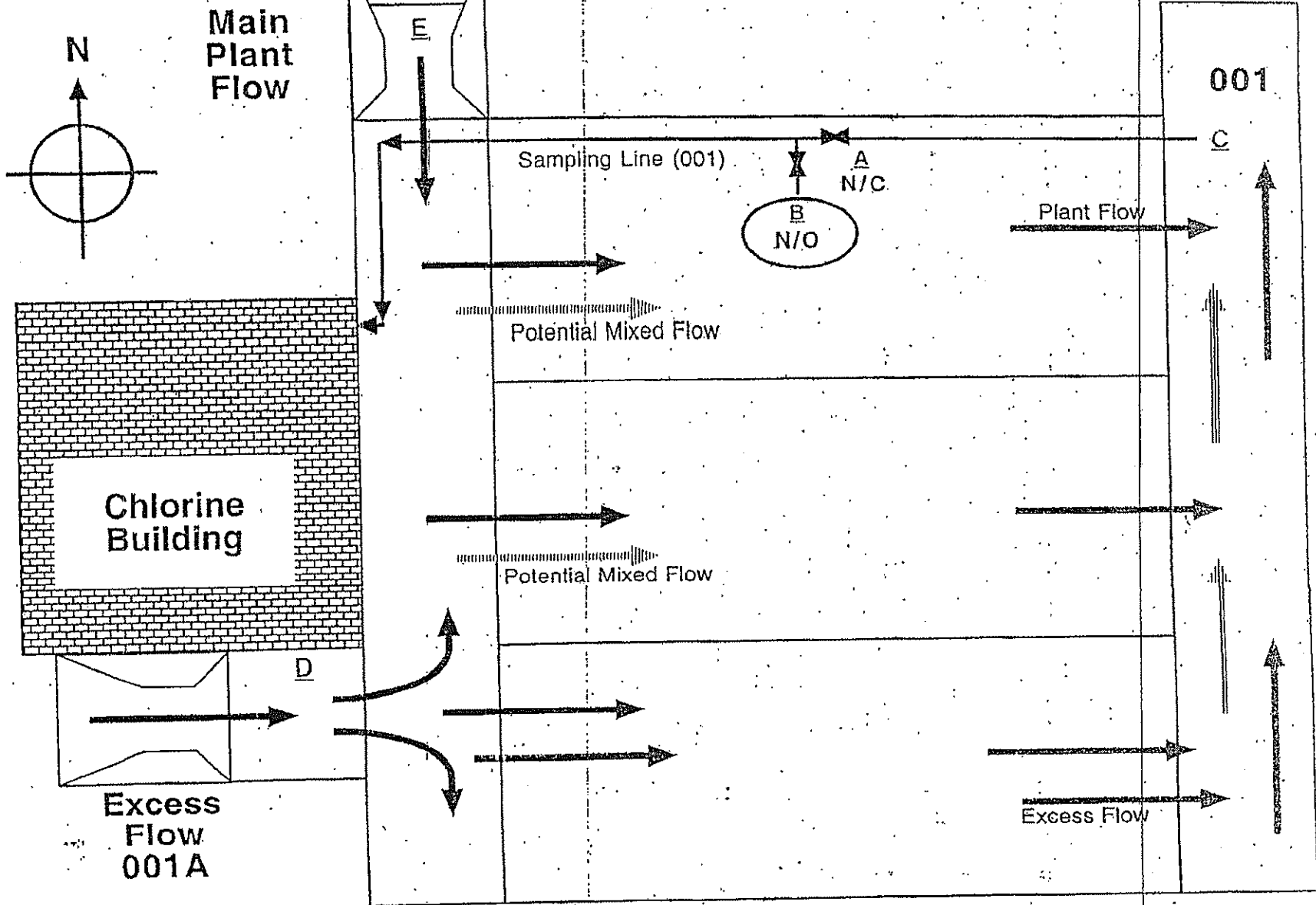
Fecal coliform maximum count limit was exceeded on July 29, 2013; July 30, 2013; August 3 to 5, 2013.


Maureen Brehmer, EPE

Attachments:
Facility Flow Diagrams
Lift station schematic
Photographs (3 pages)

NELTNOR..RT.59

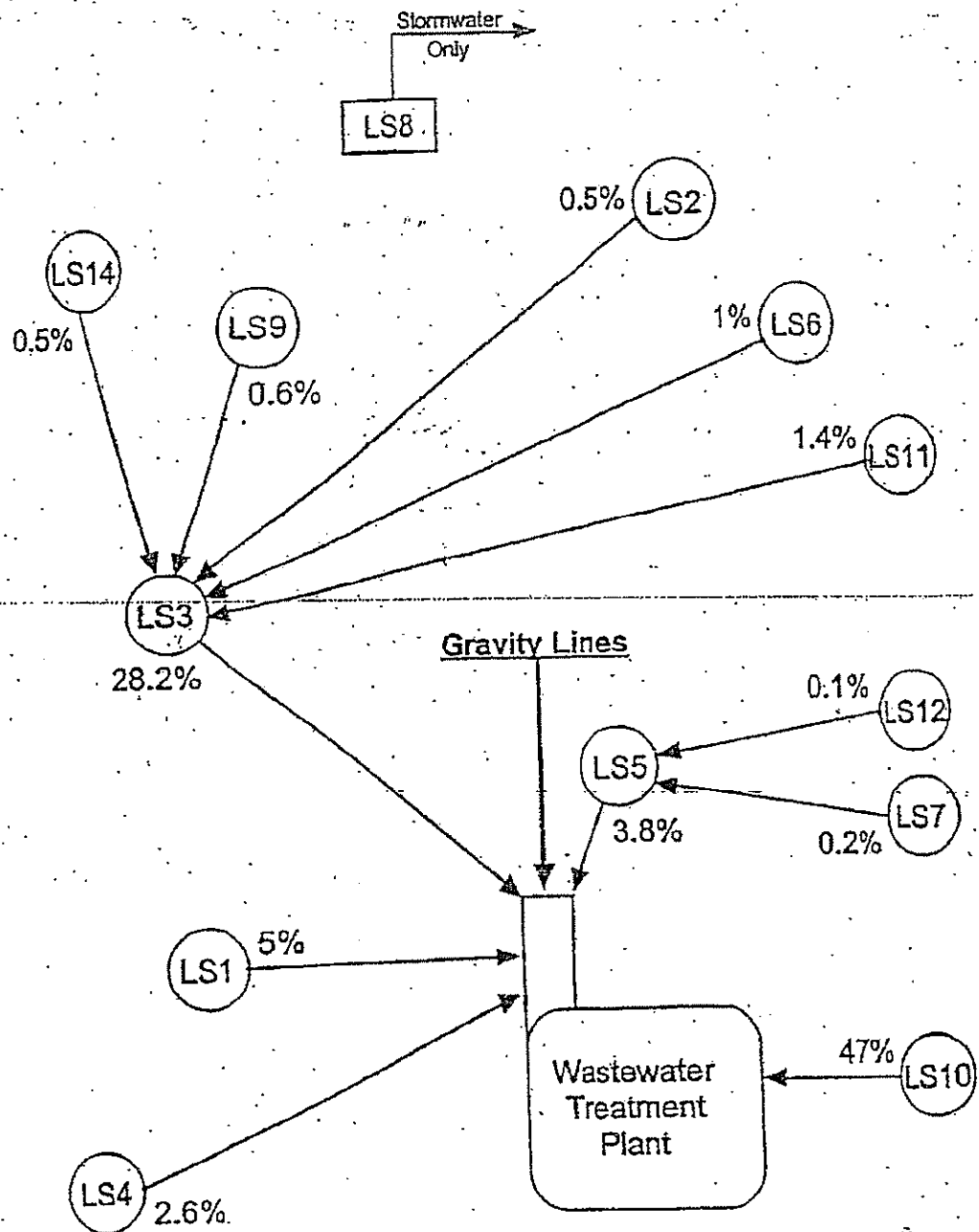




West Chicago, IL0023469, 09/20/04

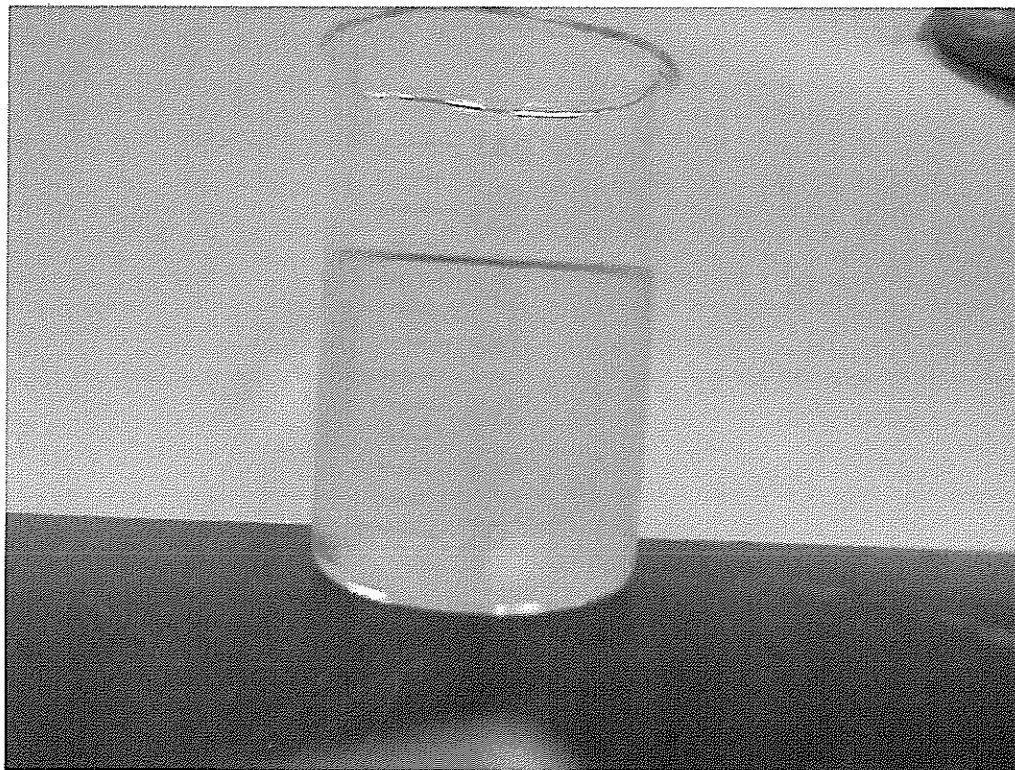
City of West Chicago
Lift Station Schematic

NPDES IL0023469





DIGITAL PHOTOGRAPHS

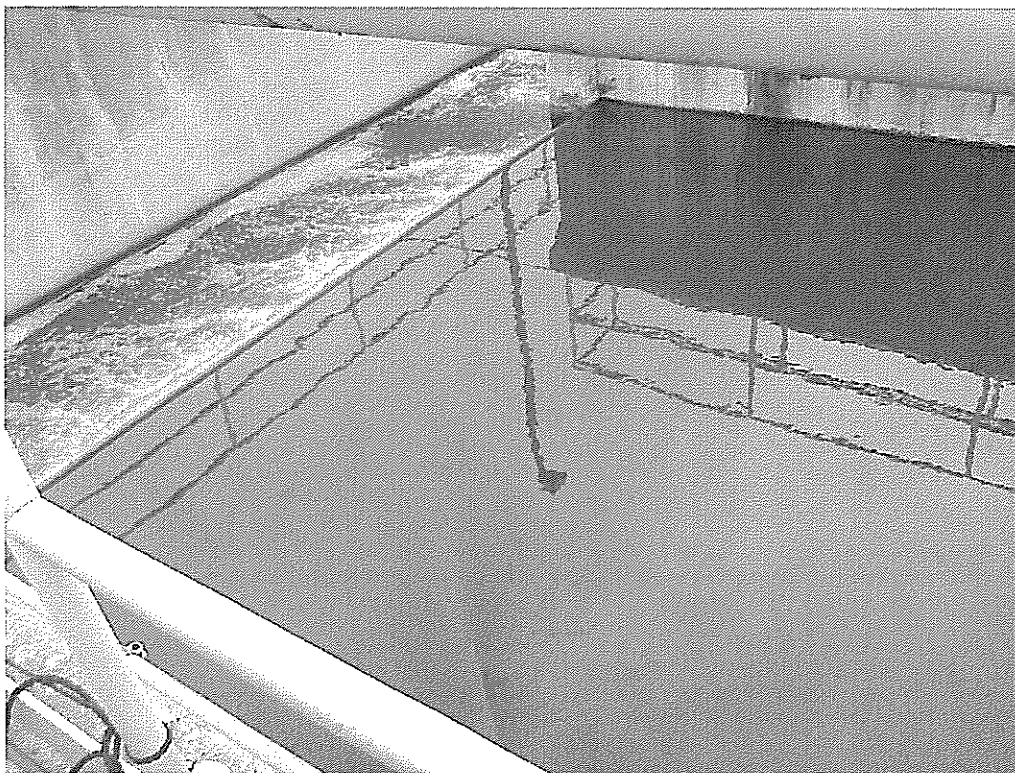


Date: 8/6/2013

Photo by: MB

Exposure #: 1

Comments: Plant
composite sample
from 8/5/2013 to
8/6/2013. The
sample appears
cloudy/turbid.



Date: 8/6/2013

Photo by: MB

Exposure #: 2

Comments: Chlorine
tank appears dark.



DIGITAL PHOTOGRAPHS



Date: 8/6/2013

Photo by: MB

Exposure #: 3

Comments: Floating
scum in chlorine
contact tank.



Date: 8/6/2013

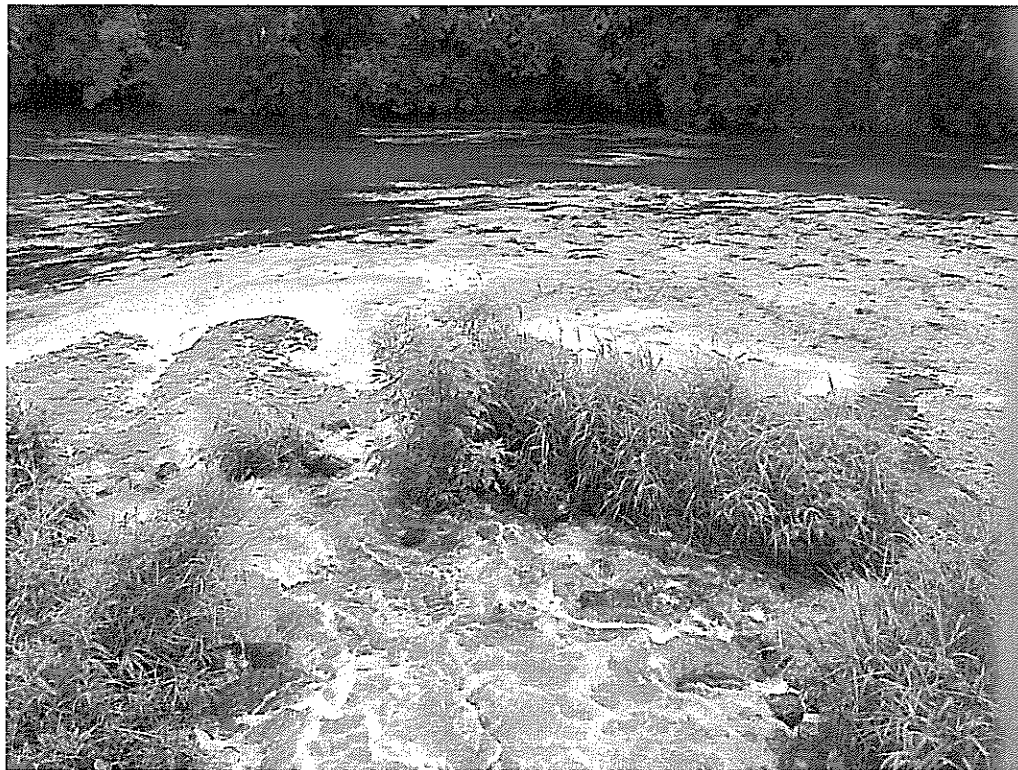
Photo by: MB

Exposure #: 4

Comments: Floating
sludge clumps in
chlorine contact tank.



DIGITAL PHOTOGRAPHS



Date: 8/6/2013

Photo by: MB

Exposure #: 5

Comments: discharge
to West Branch of
the DuPage River –
floating brownish
scum and turbid
effluent.